

Severe local storms, September, 1931—Continued

Place	Date	Time	Width of path (yards)	Loss of life	Value of property destroyed	Character of storm	Remarks	Authority
New Mexico (northern Rio Grande area).	23-24					Floods	Highways, railway, fields and crops damaged; homes flooded.	Official, U. S. Weather Bureau.
Norway (near), Kans.	24	7:30 p. m.	880		5,000	Tornado and hail	Livestock killed; crops injured; 10 persons hurt; path 8 miles long.	Do.
Rush County, Ind. (central).	25	2 p. m.	440-880			Thunderstorm and wind.	Considerable damage to buildings; telephone service interrupted.	Do.
Boston, Ind.	25	2:45 p. m.	100-130		100,000	Tornado	2 school buildings and a number of dwellings damaged; crops hurt; 25 persons injured.	Do.
Grayville (near), Ill.	25				4,500	Wind	Buildings damaged.	Do.
Anderson, S. C.	26	A. m.			10,000	Thunderstorm	Several barns and contents destroyed by lightning.	Do.

RIVERS AND FLOODS

By MONTROSE W. HAYES

[In charge River and Flood Division]

Local overflows in small streams occurred in September in northwestern New York, Ohio, Michigan, Wisconsin, and New Mexico. The resulting damage was of minor consequence. A few rivers rose to stages slightly above bankful, as shown in the following table, but the only damage reported was in New Mexico, near Espanola, where there was estimated damage of \$1,500 to highways, and \$500 to crops:

Table of flood stages in September, 1931

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
ATLANTIC SLOPE DRAINAGE					
	<i>Feet</i>			<i>Feet</i>	
Roanoke: Williamston, N. C.....	9	1 26	1	9.9	1 31
Peedee: Poston, S. C.....	18	1 29	1	18.9	1 31
MISSISSIPPI SYSTEM					
<i>Missouri Basin</i>					
Big Blue: Blue Rapids, Kans.....	20	25	26	20.8	25
Grand:					
Gallatin, Mo.....	20	26	26	23.3	26
Chillicothe, Mo.....	18	26	27	20.8	26
<i>Ohio Basin</i>					
White, West Fork: Edwardsport, Ind.....	10	17	18	12.0	18
WEST GULF OF MEXICO DRAINAGE					
Rio Grande: Espanola, N. Mex.....	7	24	24	8.1	24

¹ In August.

All dates are in September, unless otherwise indicated.

WEATHER OF THE ATLANTIC AND PACIFIC OCEANS

[By the Marine Division, W. F. McDONALD in charge]

PRELIMINARY NOTE

The most important feature of the weather of the month from the marine standpoint was the occurrence of an unusual number of tropical disturbances, seven in American waters and at least four in Asiatic waters. The American group affected the Caribbean area, the Yucatan Peninsula, Mexico, and the Pacific coastal waters adjacent to Mexico, with one hurricane producing a major disaster at Belize, British Honduras, on September 10. Special articles appear elsewhere in this issue covering the American disturbances and the first of the typhoons. The discussion has therefore been limited to brief mention in those cases below.

NORTH ATLANTIC OCEAN

By W. F. McDONALD

The pressure situation.—Average pressures for the month of September were much above normal in the region of the northeastern Atlantic, with the Shetland Islands apparently at the center of the pressure anomaly. On the other hand, the barometer averaged lower than normal over much of the western Atlantic, centering about Newfoundland and Nova Scotia, with the Gulf and West Indies showing a slight excess of pressure north of the twentieth parallel of latitude and a slight deficiency in the Caribbean Sea and Central America.

In so far as the averages for the month may be said to have significance, they represent a displacement of the normal North Atlantic HIGH northeastward, with a corresponding displacement of the LOW center of action to westward, so that the latter (resulting in fact from the combination of several separate movements of centers of low barometric pressure) obtained sway over the region of the northwestern Atlantic, Greenland, and Labrador. The mid-Atlantic HIGH was seldom well developed in the region between the Azores and Bermuda, the crest of this ridge probably being displaced southward during much of the month.

Early in the month, the movement of LOWS into the Atlantic was on an unusual track, almost due eastward along the latitude of 40°, the disturbances being as a rule but weakly developed, but nevertheless persistent in their progress eastward over the area normally occupied by well-developed HIGH formations. After the 6th a persistent HIGH was set up over the British Isles that lasted almost continuously until the 30th.

Beginning about the 10th, the LOWS over the northwestern Atlantic and adjacent land areas became more intense and in general moved slowly northeastward, crossing Greenland and passing mostly to the northward of Iceland. These developments culminated in an exceptionally deep cyclonic depression, season considered, which was central over the Strait of Belle Isle on the 25th, with minimum pressure below 29 inches.